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By EDWIN LEE MORGAN, M. D.,

Washington, D. C.

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WASHINGTON MEDICAL ANNALS,
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SURGICAL METHODS AMONG SAVAGE RACES.*

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This paper, which I present for your consideration, does not exhaust the subject—the history of surgery among savages. I have collected a few of the more important operations and customs as practised by primitive people.

In the earlier ages, the doctor and surgeon were one and the same person, but as time rolled on, the physician and surgeon became distinct personages. The old custom of the chirurgion and physician being one and the same party is found in the country medical man of our century. Time, in this latter respect, has made no change.

I claim nothing original in my paper. I present the labors of others; their scientific gems of research and thought.

Sydenham, according to Berdoe, called Hippocrates “the Romulus of Medicine, whose heaven was the empyrean of his art. He it is whom we can never duly praise.” He termed him “that divine old man,” and declares that he laid the immovable foundations of the whole superstructure of medicine when he taught that “*our natures are the physicians of our diseases.*”

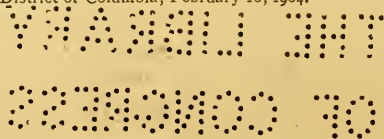
Scabies was the goddess of itch. The plague-stricken prayed to the goddess Angeronia. Women, in their troubles, sought the aid of Fluonia and Uterina. Ossipago was the goddess of the navel and bones of children. There were many goddesses of midwifery. “Carna presided over the abdominal viscera;” bacon and beans were offered as a sacrifice to her. St. Augustine “pours his satire and contempt on women’s goddess.”

Pliny complained “that people believed in any one who gave himself out for a doctor, even if the falsehood directly entailed the greatest danger.

“Unfortunately there is no law which punishes doctors for ignorance, and no one takes revenge on a doctor if through his fault some one dies. It is permitted him by our danger to learn for the future, at our death make experiments, and without having to fear punishment, to set at naught the life of a human being.”

This was Pliny’s statement in remote ages, and yet we know

* Read before the Medical Society of the District of Columbia, February 10, 1904.



today the unfortunate doctors were too often killed among primitive people. I knew of a case where the medicine man out West among the Indians was killed when the patient died.

Among some savages, "as in Ponapé, boys are always subject to semi-castration, as Dr. Finsch remarks, in order to prevent the possibility of orchitis, and further, because the girls consider men thus distinguished handsomer and more attractive." Like removing a healthy appendix to prevent any future trouble. The incision of the perineum before labor was used by primitive people, and its mechanical closure afterwards.

The Africans seem to enjoy a "freedom from puerperal fever, and the impunity with which abortions are produced," with no bad after effects. These natives recover from wounds and operations without sepsis, and without manifesting pain. Clot Bey states that native Egyptians are good subjects for operations, "shock being unknown and the dread of operation not existing." The Jesuit Father Cronenberg,^{A.C.} says Dr. Gihon, "attributes the marvelous rapidity of healing of wounds among the Zulus and other savage tribes not alone to climate and mode of living, but to the natural endowment of the people." "Felkin finds the tactile sensibility of Europeans, Arabs and Negroes to be in the proportion 1, 2, 3, the last exhibiting in consequence their stoical indifference to pain." Dr. Grant (Bey) "calls attention to the destruction of life and, consequently, influence on the number of births in Egypt from craniotomy performed by ignorant midwives; and the thousands of criminal abortions practiced by them are also a factor in reducing the normal birth rate."

Dr. Gihon, quoting from an authority on China, says: "The Chinese claim to be in possession of a treatment for hydrophobia not like Pasteur's, which reduced the mortality to one per cent."

Dr. George Kober's translation of Dr. Max Bartel's work states: "Whilst many deny that our North American Indians possess any therapeutic knowledge, it is nevertheless true that in *suppurative and sloughing wounds* the Shaman prepares a decoction of willows, and by blowing it either directly from his mouth, or by use of a reed, he thoroughly cleans the wound, and thus employs, whether knowingly or not, I do not pretend to say, an antiseptic solution, the active principle of which we all know is salicylic acid; moreover, the Dakotas, in suppurating wounds, not infrequently introduce drains made of the bark of trees, and also em-

ploy a primitive syringe made from an animal bladder and a quill."

My own observation leads me to believe our Indians do use remedies and employ surgical treatment among their sick and injured, in many cases intelligently, and not as a result of magic or Shamanism, although the latter greatly prevails in their management of patients.

"Attempts to close wounds with sutures are not infrequent. Schoolcraft refers to some of our Indian tribes who employ sutures made of sinew or tree bark which are permitted to remain until after the sixth day. The natives of South Australia resort to compression, and the Winnebagos never permit ugly wounds to heal by first intention, but keep them open, so as to heal from the bottom."

It must not be forgotten that savages, like their civilized brothers, acquire knowledge by contact with an enlightened race. The missionaries, explorers, traders and the army may be responsible for some seemingly advanced medical and surgical treatment in sickness and injuries in our country among the Indians.

"According to Wolff, the negroes of *Ovango* treated a gunshot wound of tibia quite skillfully by means of a grass splint, made of swamp grasses, extending above the knee and below the malleoli, securing the immobility of the fragments, leaving a fenestrated opening for the escape of discharges. Mincopies dress gunshot wounds with leaves. Samoans remove a spear head by a counter opening, and pull the missile through. To control hemorrhages, eagles' down, vegetable styptics, sometimes in conjunction with compression, the spongy part of an old cocoa-nut; in Morocco, circular compression, and also hot pitch, if necessary; primitive tourniquets are used in the South Sea Islands, in conjunction with a native fabric made of the paper mulberry tree.

"The North American Indians, in *violent* nose bleeding, stuff the nostrils with hot pulverized charcoal." For epistaxis, some savages apply cold to the scrotum. The Mincopies treat skin diseases with a large heated flat stone. The Indians in Southern California treat primary ulcers of syphilis with a live coal.

The Creeks and Winnebago Indians get fair results from their method of treating fractures, as compared with other savages. South Australians use a clay splint. They straighten the limb and apply the clay splint, which finally hardens. Bartel mentions

the case of a fractured femur where "there was no perceptible lameness or shortening," and also a fractured jaw treated successfully by a clay mask.

My own observation has been, our Indians do not as a rule obtain good results in the treatment of fractures. I saw them use a slat splint in one case of fracture, and in a fractured humerus they wrapped something soft around the arm, and then applied two pieces of rawhide over this, encasing the arm and extending a few inches above and below the seat of fracture. They then tied the splint on. The splint used resembled two hemispheres, with flanges at each end.

Schoolcraft states that the Indians do not know how to treat strangulated hernia, while in the reducible variety they use suitable bandages. Many primitive people do not know how to treat hernia. Some use hot irons. In Morocco trusses are used. The natives of India operated on stone in the bladder but which resembles the European method of a hundred years ago. "The finger is introduced into the rectum and the stone pressed against the perineum. An incision is made over the protruding part, and after dividing the walls of the bladder the stone is removed by means of forceps." Corre states the Fullahs of Rio Nunez extirpate the cervical glands.

I was told by the Indians, and also a Catholic priest, that an Okanagan squaw operated successfully for cataract in days gone by. This was about in 1879 or 1880 when I heard of this woman operating on eyes. I doubt the diagnosis for the following reasons: Pterygium was very common on the Columbia, Colville, Spokane, Okanagan, and other rivers of that locality from 1879 to 1886, when I left Chewelah. I have seen pterygium on both eyes, generally on the inner side toward the nose, and also on one eye; then again, double on both eyes. This no doubt was the condition operated upon by the Indian oculist. Bancroft refers to an operation on an Okanagan Indian, where the abdomen was laid open and a large quantity of fat was removed. The Indian operating closed the wound with stitches.

A Chippewa Indian performed *Caesarean section* successfully on his wife. Felkin in Uganda, Central Africa (Dr. George Kober's translation of Dr. Max Bartel's work, etc.), describes Caesarean section he witnessed in that country.*

* See also "Histoire des Accouchements Chez Tous Les Peuples," G. J. Witoldski, page 621.

“The woman, a primipara, aged 20, was placed upon a reclining couch, and after a partial stupefaction by means of banana wine, she was secured across her chest to the bed with a broad bandage made of bark fiber. Another bandage secured her thighs, the ankles being held by an assistant. A second assistant stood on the right side of the bed and fixed the abdomen, whilst the operator, with knife in his right hand, stood on the left side of the bed. After murmuring some incantation, he washed his own hands and the abdomen of the patient with some banana wine, and subsequently with water.

“He uttered a shrill note, which was answered by the multitude without, and made his incision, reaching from the pubis to the umbilicus, dividing the abdomen and uterus with one stroke of the knife, so that the amniotic fluid gushed forth. All the bleeding points in the abdominal wall were promptly touched by an assistant with a red-hot iron. The operator quickly enlarges the uterine incision, whilst an assistant held the wound apart, and when the uterine opening was sufficiently enlarged, he extracted the child, which was given to another assistant, and the umbilical cord was promptly divided.

“The operator now laid his knife aside, and rubbed and pressed the womb with both hands. He also introduced his right hand into the uterine cavity and dilated the cervix with two or three of his fingers, and then removed the placenta and blood clots through the abdominal wound. In the meantime the operator endeavored to secure firm contraction of the womb, while the assistant cautiously applied the actual cautery to all bleeding points, and another assistant was kept busy trying to prevent protrusion of the intestines.

“The uterine wound was not sutured. The assistant relaxed his hold of the abdominal wound, which was covered with a porous grass mat, and the patient was lifted up and partly turned upon her side to permit of free drainage of the abdominal cavity, after which she was gently placed upon her back, the mat removed, and the abdominal wound closed by means of seven slender but well-polished nails, resembling acupuncture needles, and a twisted suture made of vegetable fiber. The wound was covered with a thick paste, made from the chewed pulp of two different roots, over which a warm banana leaf was laid, and the whole secured by a firm bandage made of Mbugu fiber.

“The woman bore the above operation without complaint, and one hour afterwards rested very comfortably. Felkin reports that the temperature on the second evening was 101, and the pulse 108. The child was put to the breast two hours after the operation. On the third morning the dressings were removed, and a few of the needles; the remainder were taken out on the fifth and sixth days. There was very little pus, which was removed by means of a spongy pulpa, and on the eleventh day the wound had entirely healed.” Ovariectomy is practised amongst savage people.

Operations on males to produce a *mika man* is an interesting procedure in Australia. Dr. J. G. Garson furnishes us with an account of this operation and custom. An artificial hypospadias is produced.

“On Corpus Christi Creek, Western Australia, the natives content themselves with making a small incision through the urethra, immediately in front of the scrotum. Through this opening the semen is ejaculated during copulation after the wound is healed.

“Second.—On the Diamantia^h and Lower Georgiana the natives divide the urethra in front of the scrotum and again just below the glans penis, then cutting longitudinally along each side, dissecting it out.

“Third.—The most general plan of mutilation is that which I show you in a photograph. It is performed by placing a narrow piece of wood along the dorsum of the penis and drawing the loose skin tightly backward over the wood. A flint knife is then inserted into the orifice, and the urethra is laid open to the scrotum. Before the operation is performed the penis is beaten till it is benumbed. After the operation the penis is bandaged against the abdomen; should excessive inflammation of the wound occur during the healing process, it is dressed with a kind of native clay or crushed eucalyptus leaves. The mortality after this operation is stated to be *nil*.

“A man seizes the prepuce between his thumb and forefinger and, stretching it to its fullest extent, while the headman of the tribe transfixes it with a flint knife of lancet shape, sharpened on both sides, cuts it off with one circular sweep. After cessation of hemorrhage it is dressed with soft down or eagle’s hawk feathers.”

The Mylagordi Method.—Divide the prepuce by four longitudinal incisions and dissect each segment backwards “to the butt of the penis,” removing each separately. “In the northern territory the prepuce is scored with a flint knife and then dressed with irritating herbs so as to produce hypertrophy of the parts.” Operation is done for cleanliness, etc. You can well imagine a picture of those operated upon after healing, when the penis is in a state of erection.

The method to make women barren in Australia to a certain extent is called *Euréltha*. Dr. Garson states in his article in regard to these Australians that they operate on girls at the ages from ten to twelve years. They make a roll of emu feathers from seven to eight inches long, being thicker at one end than the other. It is tied tight around with twine made of opossum fur, and daubed with fat and red ochre. To the small end a cord of human hair “is attached, looped over it,” being “brought down to the thicker end” of the roll. She is placed on her back; the thin end of the roll, with loop, is introduced into the vagina. Then a flat piece of stick is passed into the vagina along the side of the roll, and the loop at the upper end is placed around the end of the cervix uteri and tightened slightly. After a considerable period of time, and when the parts have become swollen, the operator, who is an old man or woman, twists the cord around his or her hand, and the portion of the cervix uteri within the loop is forcibly severed and drawn out with roll and loop.

After three weeks a small flint knife attached to the end of a stick, six inches long, is passed into the vagina. A vertical and transverse incision is made into the stump of the cervix uteri. The incisions are packed “with duck or eagle’s hawk’s down” to keep them open. “Lumps of heated fat are now inserted to grease the parts and keep them clean.” After the healing of these wounds, “the lower end of the posterior wall of the vagina is divided down to the anus,” * * * “in order that sexual intercourse with the mika man may be more easy.” Dr. Garson states that only a few Australian tribes practise this operation in Central Australia. These women who have been operated upon are called “dindahs” or “dindees.”

I have thought it best to place the following bloody, puberty ceremonial under the head of cosmetic surgery, as scars are admired by some savages. Lubbock states, “Among the females

on the Murray, the only ceremony of importance with which Erye was acquainted was that of scarring the back. Erye, indeed, calls it tattooing, but "crimping" would, I think, be a more correct expression. It takes place at the age of puberty, and is extremely painful. The woman kneels down and places her head between the knees of a strong old woman, and the operator, who is a man, cuts the back with a piece of shell or flint in rows of long, deep gashes from left to right quite across the back and completely up to the shoulders. The whole scene is most revolting; the blood gushes out in torrents and saturates the ground, while the cries of the poor victim gradually rise into screams of agony."

This is a voluntary act on the part of the female, and shows what tortures women will endure to become envied by their own sex; beautiful and beloved as savages, and even as civilized women in our own era and country, in order to attract the opposite sex.

Deforming the Heads of Living Children.—The Bari people compress their children's heads in front of the ears, which "increases the height along the sagittal suture." The Monbuttu barbarians bandage the heads of their infants of the ruling family, "so as to lengthen the horizontal axis." Some of the natives of the island of Mallicolo "have elongated deformation caused by the pressure in infancy of a pointed cap." Our American Indians have also a similar custom of flattening the heads of infants. I have heard Hudson Bay Fur Company men say many of these infants belonged to the chieftain class. Deforming the skulls of the living was practised during Hippocrates' time, 460 B. C., and was also observed by Strabo, and of Attila's Huns, even to the present time in Roumania." Flattened skulls due to mechanical pressure are to be seen among the aborigines of South America and Oceanica.

Suicide in China.—Suicide is often of a surgical nature as well as medical, it being a form of murder, as is too often the case, when a man places himself in the hands of an inexperienced operator. Therefore I classify suicide under the head of surgery. Among the Chinese self destruction is common. The means employed are opium or gold-foil eating, drowning, cutting the throat and cutting out the tongue, and thus they shuffle off this mortal coil. The cause, "a common form of melancholic insanity, is the Scythian disease of Hippocrates, due to the loss of virility

and often complicated among the people of the Caucasus, Thibet and Japan with zoanthropia." The Japanese sends you a weapon to disembowel yourself with, and he does likewise.

Circumcision on Male and Female.—This is almost a universal operation, being performed by various tribes and races, is of the greatest antiquity, and males in the past have been operated upon for different reasons. Prof. McGee suggests as one what might be considered the theory of the evolution of clothing, showing the picture of a naked savage, having a string around his waist, attached to and extending along the penis and around the foreskin. In the course of time by heredity, etc., *i. e.*, in future generations, the foreskin became enlarged, a nuisance, and was cut off. This theory is open to objections, one being why do they today still use this mode of dressing? And why not circumcise when a baby, thus avoiding holding the penis and prepuce with a cord?

The Egyptians of the era of Rameses II, 1370 B. C., practiced this rite, also the Jews and other races, both in the past and present. There is in Egypt an old ruin. The upper part of the sculpture is destroyed, but the lower part shows the operation under discussion as performed in ancient times.

The Manyuena circumcise a slave first before operating on a chief's son. After a Dieri boy has been circumcised a rope of human hair taken from the men, women and children is wrapped around his waist. The Kaffir boy after this operation is allowed to seize any married woman and have sexual intercourse with his captive. The foreskin of the Arunta boy after this ceremony is swallowed by his younger brother to "strengthen him and make him grow tall and strong." "The blood is rubbed over his elder sisters and they cut locks of his hair."

"When the Egyptian boy is circumcised, at the age of five or six, he parades the streets, dressed as a girl in female clothes and ornaments, borrowed from some lady. In front of him also a school friend walks, evidently taking his place as a 'proxy,' for he wears round his neck the boy's own writing tablet. A woman sprinkles salt behind the boy to counteract 'the evil eye.' That is doubtless the reason why he is dressed as a girl."

Dr. Remondino gives the following interesting account: "Among the Gallinas of Sierra Leon the clitoris of the young maid is excised at midnight, while the moon is full, after which they receive their name." A man intruding upon this ceremony would be

killed. In Egypt and Arabia a society of Mussulmen circumcise young girls at the age of seven years, and this consists in excising the clitoris by means of scissors or pincers, as is the case at "Mos-soul." A grown woman who has been educated abroad, on the birth of her child is also operated upon. Excision of the clitoris at puberty occurs amongst the Amakosa, Loanda, Maasai and Wakusi tribes. In Australia girls are always excised at the age of puberty.

The Monbuttu tribe west of Unyoro, many miles, circumcise men and women, and also cut out a "piece of the concha." Another authority states that in central Africa, the operation for ablation of the clitoris and labia minora is performed. We have read of the so-called Hottentot apron, which is said by some to be operated upon. In East Africa the labia majora, and part of the mous veneris are excised. The Gallas amputate the breasts of male children soon after birth, in order to keep them from becoming weak in body or effeminate.

Trephining.—In the ancient burial grounds of the Palaeolithic or Archaeolithic age of Lubbock, and also the more recent stone age of Europe, called Neolithic, were found several fractured skulls, some of which had been trephined—thus proving the operation to have been quite common during the last period mentioned—the polished stone age. In the cave of Cro Magnon, M. Louis Lartet, a celebrated paleontologist, found a female skull, the frontal bone of which showed a wound "in the process of healing," caused by a flint weapon. A Danish dolichocephalous skull of the stone age was found by the elder M. Lartet, which had been pierced by a spear. A fractured parietal bone, with flint axe sticking in it, was discovered in a cavern at Chauvaux, Belgium.

Dr. Prunières obtained from the interior of a dolmen, a skull which had been trephined in childhood, and the adult skull was found to have been trephined a second time. The piece of bone in this case, after death, measured seven inches long and five in the widest part. Many trephined skulls have been taken out of dolmens, and the pieces of bone which had been removed at the time of operation, were sometimes within the calvarium, or laid beside the skull. No doubt, they made with a flint knife, a T-shaped incision before operating on the bone. Broca states that the bone

was scraped through, and the disk removed. Occasionally two or three openings were made on the same subject.

Dr. Prunières has twenty skulls which had been trephined, and all recovered but one, amongst these pre-historic people. It is wonderful how successful the prehistoric surgeon was, considering his often filthy surroundings, crude instruments, methods of operating, surgical treatment of wounds, and the usual careless way in which uncivilized men take care of their sick and wounded. So far as present discoveries seem to indicate, they seldom lost a patient.

Out of these crania amulets were made ; the fragment of bone was circular, or of other shapes. These ornaments were talismans to protect the person from evil spirits in this world and the departed soul in the next. The posthumous amulets always had a piece of the "cicatrized edge of the original opening" attached to the bone of which they were made. This fact proves beyond all dispute that the individual had lived a long period after the operation.

The earliest history of remote ages is full of statements concerning certain nervous diseases called demons, evil spirits, etc. Such cases were either convulsions, delirium, epilepsy or madness, due, no doubt, to various causes incident to the modes of life of individuals so afflicted. Sometimes these diseases were considered sacred, and at others viewed with superstitious awe, the family supposing that a devil possessed the sufferer's soul. The primitive surgeon treated these cases by trephining, in order to allow the demon to escape from the living person through the opening in the skull. Possibly they operated on the dead for the same reason. As epilepsy, and particularly convulsions, is common enough among children, this fact would seem to account for the frequency of the number of children's skulls that have been trephined. *I believe that this operation, in many cases, was performed by these primitive people to remove the bone pressing on the brain, and not always to let out the devil.*

Savages have some intelligence, and even reasoning powers, based on surgical and medical experience. They may do many things that are foolish, but no more so than our ancestors, with their "Wound Salve," etc. Amongst the ancient inhabitants of the Canary Islands, "The Mound Builders of America," the oldest tribes of Mexico, of South America, and in the dolmens of Alge-

ria, Africa, and, no doubt, Asia, to say nothing of the sunken continents, of Atlantis, off the African and Spanish coasts, and in Lemuria, off the coast of Africa and Asia, where tradition says our race once dwelt, the operation of trepanning, at some advancing period of the race, toward a higher and more enlightened civilization, was frequently resorted to in order to cure disease, and relieve brain pressure due to a fractured skull. *Therefore, from evidence given, trephining is the oldest surgical operation of any magnitude that was performed by man. In fact, it can be said to have been universally adopted in all ages, past as well as present, as a recognized operation for the relief of diseases, and injuries of the skull and its contents.*

If you take any interest relative to the earlier history of trepanning and age of the skulls mentioned, I refer you to the writings of Broca, N. Joly, the Lartets, Dr. Prunières, Lubbock, Fletcher, Figuier and others. The antiquity of this operation was hoary with age before the ancient traditions of the Egyptians had been born. It might be questioned, in speaking of the stone age of Europe, during which this surgery was performed, and in some cases said to have been trepanned after death, as *an erroneous assertion. In some instances the specimen may represent unsuccessful cases dying during or immediately after trephining.*

We have considered only one side of this operation of trepanning, that solely relating to antiquity, and it is well to investigate the surgery of the skull in our own era. Trephining is practiced in the Loyalty Islands, and Samuel Ella says it is a common belief there that headaches, neuralgia, vertigo and other head symptoms are the result of a crack in the skull or pressure upon the brain, and to relieve this condition they make a T-shaped incision over the scalp down to the bone, and scrape the calvarium with a piece of glass until the dura mater is reached, the opening being the size of a silver dollar. "Sometimes the operation in the hands of an inexperienced operator, or in consequence of impatient friends, is extended to the pia mater, and the patient dies in consequence. As it is, about fifty per cent. prove fatal. But owing to superstition this barbarous custom has become so prevalent that half of the adult population are seen with a hole in their skull."

Ella adds that he had been informed that sometimes they reduce to a suitable size and thickness a piece of cocoanut shell, which they polish very highly, and place over the opening in the

skull to protect the brain of the patient. They formerly used a shark's tooth in operating. Usually they operated near the junction of the sagittal and coronal sutures. "George Turner confirms these observations, and says whilst the mortality is great the curative effects are well marked." Their results compare favorably with those of the older surgeons prior to the antiseptic era.

The Karaya Indians, of Brazil, use sharks' teeth for extracting splinters, etc. The Haussa of Northwest Africa use a primitive iron forceps in their surgery. The Colville Valley Indians, Spokanes and Kalispels poultice abscesses, whilst the medicine man of Lower California opens them by suction with his mouth. It may be well to pause and state that before the Civil War an old Virginia physician carried an old negro along with him to suck boils and taste the stools of his patients.

The Frazier River Indians and the negroes of Victoria incised the part with iron or bone knives. The inhabitants of Tahiti, Samoa and Tonga open abscesses and boils with fragments of shell, flint, glass, large thorns and shark teeth. The Dyaks of Borneo use a wooden knife. Carbuncles are treated by the Kirghis, according to Pallas, by making "numerous punctures and by the application of tobacco and ammonia." Corre "saw the Fullahs of Rio Nunez treat an ulcer by compression with a sheet of native copper."

"Castration appears to be a favorite treatment in hydrocele and orchitis, especially among the natives of Tahiti, Samoa, Tonga and Loyalty Island." *

Moore saw a native doctor at Radschputana apply a red-hot iron over an injured hernia. A savage of the Loyalty Island operated upon himself for a strangulated hernia, and died as a result of operation. While bathing in Brazil, in rivers, a small fish is liable to get into the urethra, and the natives remove this animal by external urethrotomy.

Customs Relating to the Prepuce.—Those who take interest in the religious customs relating to the use of the prepuce should read Remondino's work on circumcision, the chapter, "Miracles and the Holy Prepuce." The Indians pass a ring of gold, silver or iron through the foreskin, welding the ends together. In speaking of infibulation, Duglison mentions that "the prepuce was first drawn over the glans, and that the ring transfixed the

* Dr. George Kober's translation.

prepuce in that position ; that the ancients so muzzled the gladiators to prevent them from being enervated by venereal indulgence."

Infibulation was practised by the early Christian Monks of Greece and Asia Minor. When the Hindoo takes the vow of chastity, he wears a ring, attached to his penis ; the ring sometimes measures six inches in diameter. During the reign of Antiochus, Jews, who desired to be sexually, in appearance as those men around them, wore a copper instrument, of funnel shape, a tube in which they carried the virile member. Martial called it *Judaem Pondum*. The idea was to lengthen the foreskin, so as to cover the glans penis. The results were failures. According to Remondino, St. Paul refers to this operation in his Epistle to the Corinthians—

"Was any one called being circumcised, let him not be uncircumcised."

Emasculation, castration and eunuchism are of surgical interest. Mythology informs us that Uranos was successfully emasculated by his youngest son, Saturn, using, in this operation, a sickle made from a bright diamond. "As the members fell into the sea, and in the foam caused by the commotion from their contact with the element, Venus was born. Meanwhile, the blood that dripped from the wounded surface caused the giants, the furies, and the Melian nymphs to spring into life." Uranos was the first king of the now sunken continent of Atlantis, the first eunuch, and a god.

The famous beauty, Queen Semiramis, is quoted as being the first to use eunuchs as servants and letting them hold high positions of trust. Bergmann, of Strasburg, calls attention to the ancient tradition that the hyena instructed man in the operation of castration, because this animal, fearing rivals, castrated the young male hyenas. The Skoptsy, a Russian religious sect, castrate themselves. The Mahommedans, of India, use a sharpened razor and remove all the genitals. The bleeding is controlled by the application of herbs and hop poultices. Hemorrhage kills one-half of the victims.

Dr. Morache, in the Dictionnaire Encyclopedic des Sciences Medicales,* describes the operation as follows: "The patient, be he adult or child, is, previous to the operation, well fed for some

* Chinese method of operating.

time. He is put into a hot bath. Pressure is exercised on the penis and testes in order to dull sensibility. The two organs are compressed into one packet, the whole encircled with a silk band, regularly applied from the extremity of the base, until the parts have the appearance of a long sausage. The operator now takes a sharp knife and with one cut removes the organs from the pubis. An assistant immediately applies to the wound a handful of styptic powder, composed of odoriferous raisins, alum and dried puff ball powder (boletus powder).

“The assistant continues the compression till hemorrhage ceases, adding fresh supplies of the astringent powders; a bandage is added, and the patient left to himself. Subsequent hemorrhage rarely occurs, but obliteration of the canal of the urethra is to be dreaded. If at the end of the third or fourth day the patient does not make water his life is despaired of. In children the operation succeeds in two out of three cases; in adults, in one-half less.”

Eunuchs were made of prisoners of war by the ancient Egyptians, and by the Caribs when Columbus landed in America, and also previous to his time. At different periods the Romans, Spaniards, Britons and Poles castrated men for rape. In the earlier ages men who sang in choirs in the churches were castrated, in order to change their voices. The Coptic Monks have a eunuch factory.

“The little, helpless and unfortunate prisoner or slave is stretched out on an operating table; his neck is made fast in a collar fastened to the table, and his legs spread apart and the ankles made fast to iron rings; his arms are each held by an assistant. The operator then siezes the little penis and scrotum, and with one sweep of a sharp razor removes all the appendages. The resulting wound necessarily bares the pubic bones and leaves a large, gaping sore that does not kindly heal.

“A short bamboo cannula or catheter is then introduced into the urethra, from which it is allowed to project for about two inches, and no attention is paid to any arterial hemorrhage; the whole wound is simply plastered up with some haemostatic compound, and the little victim is then buried in the warm sand up to his neck, being exposed to the hot, scorching rays of the sun.

“The sand and soil is tightly packed about his little body so as to prevent any possibility of any movement on the part of the child, perfect immobility being considered by the monks as the

main element required to promote a successful result. *It is estimated that 35,000 little Africans are annually sacrificed to produce the Soudanese average quota of its 3,800 eunuchs.*"

These eunuchs sell from \$750 to \$1,000 a head. Hammond speaks of eunuchs among the Indians of New Mexico and Arizona. The Scythians often became eunuchs as a result of riding bareback. Some of the ancient heathen priests soaked the scrotum in hot water, and by gentle and firm friction, in the course of time made the testicles disappear. The ancients used several methods of operating. Remondino says: "From the removal of *all* the genitals, or the penis alone, or the scrotum and testicle, or removing only the testicles, down to compression or to distorting the spermatic vessels." *The possibility* of a bad fitting bicycle saddle, under certain conditions, and if not properly adjusted, and constantly used for a long time, day after day, *may affect the sexuality of the male*, in the same way horseback riding affected the ancient Scythian.

According to Paulus Aegineta, in making eunuchs of boys, the mortality was very small. Among the Turks, according to Chardin, three out of every four operated upon died. Clot Bey states that two out of three died. Bisson says the mortality was nine out of ten. St. Alphonsus M. Liquori said that men were not saints, and a man was a fool who allowed his daughter to take music lessons from any man other than a eunuch.

Pope Clement XVI abolished the practice of emasculating boys for church choirs, etc. Napoleon the First did likewise secularly and socially. This custom of emasculating men was practised in China during the reign of the emperor Yeu Wang, 781 B. C. Very often eunuchs are made mutes by operating on the tongue, and are much preferred.

The Effects of Syphilis on the Negro Race.—Dr. J. Wellington Byers, in an article entitled "The Influence of Race and Nationality upon Disease," states: "Darwin and Borius assert that the negroes of Madagascar are exempt, while the Hovas, of the Malay race, are frequently and seriously affected. There seems to be some ground for the popular notion that syphilis contracted from Mongolian blood by Europeans is particularly noxious, as all examples of such prove very intractable." Then he quotes from Dr. Livingstone:

"A certain loathsome disease which decimates the North Amer-

ican Indian and threatens extirpation of the South Sea Islanders dies out in the interior of Africa without the aid of medicine ; and the Bangwas^t, who brought it from the West^t coast, lost it when they came into their own country, southwest of Kolobeng. It seems incapable of permanence in any form in persons of pure African blood anywhere in the interior of the country. In persons of mixed blood it is otherwise, and the virulence of the secondary symptoms seemed to be, in all cases that came to my care, in exact proportion to the greater or lesser amount of European blood in the patient. Among the Corannas and Griquas of mixed blood it produces the same ravages as in Europeans. In half-blood Portuguese it is equally frightful in its inroads upon the system, but in the pure negro of the central part it is quite incapable of permanence."

Fritsch, in commenting upon this opinion of Livingstone, says, that "syphilis is very rare in Bechuana Land ; only in scattered cases, mostly imported from Cape Colouy, though there are materials with which to controvert the assertion that this disease does not hold good with pure Ethiopian blood.

"That this disease does attack the negro in a mitigated and less virulent form than it does the white and other races appears probable from past experiences in this country. The last census shows the disparity ; and from my own personal observation the disease is far less formidable in the negro, and is readily cured by appropriate treatment. It certainly, upon the whole, pursues a milder course, there is less damage to the system, and there are fewer lesions of any kind."

Savages have various methods of treating syphilis ; roots, herbs, minerals, mineral waters, baths and massage they also employ to relieve pains.

Rubbing with the hands is used both in savage medicine and surgery, as no doubt this method is of the greatest antiquity. Dr. ~~—~~ states that Adam, having eaten the forbidden fruit given him by Eve, was that night seized with a violent colic. Eve, in her blushing innocence, used massage over Adam's abdomen. Possibly, I may add, this may throw some light on the dark side of history relating to the subsequent events—the birth of Cain and Abel. Adam was an anatomical curiosity, it is stated, in not having a navel, *for he had no use for one, not being born of a woman.*

In the writings of a Chinese writer, Kong Fu, 700 B. C., "a full description of medical gymnastics and massage as practiced at that time" is described. "The Hindu Vedas, or Books of Wisdom," contain paragraphs showing "gymnastics and massage were well known" in ancient times in India. The Phœnicians, Persians, Egyptians of old, and ancient Greeks used massage. Hippocrates advocated the use of massage, and "other physicians of ancient Hellas." The ancient Romans borrowed it from the Greeks, and it was used by the Latins in conjunction with their baths.

Fevers belong not only to the field of medicine, but also to the domain of surgery. *Rome had a goddess of Fever. The old-time surgeons and physicians used powerful drugs and bleeding in the treatment of fever and other diseases. So did the savage of the past, as well as of the present.*

Transfusion of Blood.—The following quotation may be of interest, and, on the part of the assertion of the author quoted, rather startling, from a medical point of view. It is copied from a medical journal quoting from a paper in another medical periodical: "Transfusion, which is transmission of the blood of one animal into the circulation of another, was practiced centuries before the birth of Christ, yet why this should have been done when the circulation of the blood was not understood is hard to explain." It might be asked if this fact *was not an interpolation occurring in an old medical work, having been inserted there during our era.* Some authorities claim interpolations of recent origin have been found in ancient Hindu medical books.

Pages upon pages can be written on the subject of savage surgery. We only, as a rule, compare the extremes, but the dividing line is not so well marked. Man at his best is a veneered savage. Many of the men of our times are but little removed from the wild men of the verdant forests, the hot-blooded son of the golden sands of the desert, the stalwart dweller of the cliff and mountain, the cultivator of the fertile plains and the lords of the gems of the emerald isles, surrounded by the deep blue sea, whose music on the shell-girdled shores lulls them each night into a sweet repose. The so-called semi-civilized man of Northern Africa uses trusses in the treatment of hernia, yet he is a savage. The subject I have presented for your consideration is of the greatest interest to me, and I hope of like interest to you. The

history of medicine is of the greatest importance, and so is that of surgery. The poet says :

“ Know then thyself, presume not God to scan.
The proper study of mankind is man.”



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